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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,282	03/25/2002	Frank Hofmann	1941	9040

EXAMINER	
WOZNIAK, JAMES S	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
10/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/030,282

Applicant(s)

HOFMANN ET AL.

Examiner

James S. Wozniak

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/23/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2 and 4-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 1/24/2007, the applicant has submitted an amendment, filed 7/23/2007, amending independent claims 1-2 and 7-8, while arguing to traverse the art rejection based on the limitation regarding the use of independent AM frequency channels (*Amendment, Pages 8-9*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

Response to Arguments

2. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

The applicants argue that amended claim 8 covers both embodiments shown in Figures 1 and 3, and thus, submits that the drawing objections should be withdrawn. The examiner notes that all of the claimed elements are represented in the drawings (*although not a single embodiment as will be shown below*), and thus, the associated objection is withdrawn. Also, the claim objection has been withdrawn due to the amended claim and the applicants clarifying comments (*Amendment, Pages 7-8*). It is pointed out, however, that the amended claim raises new matter issues.

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Specifically, claim 8 describes a receiver having *two* demodulation and decoding units for an HD stream or HD and ZD stream. This receiver also comprises several means that link a HD and ZD stream (*i.e., evaluation unit and linkage unit*). Turning first to the drawings, Fig. 1 shows the first demodulation and decoding units. In this embodiment, according to the specification, the transmitter the applicant regards as his invention (*combined main and auxiliary streams, Advantages of the Invention, Pages 1-2*) is combined with a prior art or first generation audio receiver (*first generation single channel receivers, Specification, Page 5*). The result of such a combination is that an auxiliary stream would be dropped because the first generation receiver could not process the auxiliary stream (*Specification, Pages 4-5*). Thus, the demodulation and decoding units referenced in claim 8 and found in Fig. 1 (*5 and 6*) cannot process the auxiliary stream and would not have an evaluation or linkage unit. Therefore, the specification does not contemplate and the drawings do not show a system having either two demodulation and two decoding units or a first generation receiver having evaluation or linkage units. Accordingly, claim 8 is directed towards new matter, and similarly, claim 2 fails to comply with the written description requirement. It is worth pointing out that claim 8 seems to be reciting the applicant's receiver for use with the applicant's transmitter, shown in Fig. 3. If elements 5 and 6 were deleted from claim 8, it would describe the demodulation unit and decoding unit that can alternatively just process a main data stream as was presented in the current amendment. The specification supports that the applicant's next generation receiver can receive the base signal or the base signal and an auxiliary audio signal (*Page 5*). Thus, an amendment to this effect is suggested in order to overcome this new matter issue.

The applicant traverses the art rejection of the independent claims on the basis that Mansour et al (*U.S. Patent: 6,353,637*) “fails to use different broadcast channels which are independent from each other” by teaching a single carrier (*Amendment, Page 8*). Upon further consideration, the examiner notes that while the main embodiment of Mansour described throughout the specification is directed towards a single communication channel or carrier (*see, for example, the claimed invention having a single communication channel with a single carrier, Col. 20, Lines 35-55*), Mansour also suggests that his invention can alternatively be carried out with a plurality of carriers/communication channels (“*the invention may be utilized with any desired type of communication channel or channels,” Col. 3, Line 50- Col. 4, Line 4*). Mansour also recites AM communications (*Col. 4, Lines 5-16*). Thus, Mansour suggests independent AM frequency channels for the transmission of core and enhancement streams. Nahrstedt further provides the explicit teaching of multiple communication channels and a reason as to why one of ordinary skill in the art would be motivated to implement such an embodiment in the form of maintaining a required reproduced signal quality over undesirable network conditions (*see Prior OA, Page 7*). Although it could be argued that in such a multi-communication channel embodiment it would be inherent to reference auxiliary or enhancement audio information to recombine such information and reconstruct an audio signal, Campanella provides an explicit teaching of an auxiliary content indicator to allow dynamically controlling the reception of an audio broadcast at a remote server (*prior OA, Page 8*) and for the obvious reasons of simply determining where enhancement data can be easily retrieved. Thus, it is the combination of Mansour, Nahrstedt, and Campanella teaches the aforementioned claim limitations.

In response to applicant's arguments against the references individually (*Amendment, Pages 8-9*), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to the applicant's argument that motivation was not provided from the references for combining the prior art of record, the examiner notes that although such reference-derived motivation is not required if a combination would have been obvious to one of ordinary skill in the art, motivation from the references has been provided in this case (*see above and prior OA, Pages 7-8*).

The art rejection of the dependent claims is traversed for reasons similar to the independent claims (*Amendment, Page 10*). In regards to such arguments, see the response directed towards the independent claims.

Claim Objections

3. **Claim 2** is objected to because of the following informalities: in lines 12-13, "decode only the main data stream (HD) or the main data stream (HD)" is believed to refer to "decode only the main data stream or the main data stream (HD) and the auxiliary stream (ZD)-- as is disclosed on pages 4-5 of the specification (*i.e., it appears that the auxiliary stream limitation was inadvertently not included*). The claim should be amended accordingly.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 2 and 8** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 8 describes a receiver having two demodulation and decoding units for an HD stream or HD and ZD stream. This receiver also comprises several means that link a HD and ZD stream (*i.e., evaluation unit and linkage unit*). Turning first to the drawings, Fig. 1 shows the first demodulation and decoding units. In this embodiment, according to the specification, the transmitter the applicant regards as his invention (*combined main and auxiliary streams, Advantages of the Invention, Pages 1-2*) is combined with a prior art or first generation audio receiver (*first generation single channel receivers*). The result of such a combination is that an auxiliary stream would be dropped because the first generation receiver could not process the auxiliary stream (*Specification, Pages 4-5*). Thus, the demodulation and decoding units referenced in claim 8 and found in Fig. 1 (*5 and 6*) cannot process the auxiliary stream and would not have an evaluation or linkage unit. Therefore, the specification does not contemplate and the drawings do not show a system having either *two demodulation and two decoding units*,

as recited in the presently claimed invention, or a first generation receiver having evaluation or linkage units. Accordingly, claim 8 is directed towards new matter.

Claim 2 recites a method performed by the system recited in claim 8. Since the specification does not sufficiently describe a system having two types of receivers (4 and 7) in a single system, the specification likewise fails to disclose a method that first decodes main audio data at a first generation decoder and then discloses HD and ZD audio data in a receiver with higher reproduction quality. Thus, claim 2 fails to comply with the written description requirement. In order for claim 2 to overcome this rejection, the examiner recommends canceling the limitation regarding "using a receiver (4)" because a receiver (7) could decode either only HD audio or HD and ZD audio and this embodiment is supported in the specification (Page 5).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-2, 4-5, and 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mansour et al in view of Nahrstedt ("*An Architecture for End-to-End Quality of Service Provision and Its Experimental Validation*," 1995), and further in view of Campanella et al (U.S. Patent: 6,201,798).

With respect to **Claims 1 and 7**, Mansour discloses:

A method for transmission-end preparation of source-coded audio data of at least one useful signal source, in particular for transmission via AM channels (*IBOC-AM system, Col. 4, Lines 5-53*) of a predetermined channel raster with the following features:

The source coded audio data of at least one useful signal source are separated into a main data stream and at least one auxiliary data stream (*dividing coded audio into a core audio stream (C-stream) and enhancement streams (E_1 and E_2 streams), Col. 4, Lines 37-53 and Col. 5, Lines 4-27*);

Wherein the main data stream contains at least the amount of information that is required for a comprehensible reproduction of at least one useful signal source (*C-stream that provides minimum acceptable audio quality upon recovery at a receiver, Col. 4, Lines 37-53*) and the auxiliary data stream contains information for quality improvement (*enhancement streams that allow for higher audio quality when combined with a recovered C-stream, Col. 4, Lines 37-53*);

The main and auxiliary data streams are modulated and accommodated in respective different channels of the predetermined channel raster (*modulation of core and enhancement audio streams at a modem and transmission of the streams using different channels, Col. 5, Line 52- Col. 6, Line 45; Fig. 2; and Col. 8, Lines 61-65; wherein channels can correspond to communication broadcast channels, Col. 3, Line 50- Col. 4, Line 4*).

Although Mansour suggests that his invention can alternatively be carried out with a plurality of communication channels (*"the invention may be utilized with any desired type of communication channel or channels," Col. 3, Line 50- Col. 4, Line 4*), Mansour only suggests such an implementation. Transmitting base and enhancement coded audio streams in different

broadcast channels is well known in the art, however, as is explicitly evidenced by the teachings of Nahrstedt (*multiple priority transmission channels used to transmit voice data from different streams, Pages 49-50*).

Mansour and Nahrstedt are analogous art because they are from a similar field of endeavor in coded audio transmission systems utilizing core and enhancement data. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Mansour with the priority channels concept taught by Nahrstedt in order to maintain a higher quality of signal over larger data loss ranges (*Nahrstedt, Page 49*).

Although Mansour in view of Nahrstedt discloses transmitting coded audio core and enhancement layers on different transmission channels, Mansour in view of Nahrstedt does not explicitly disclose that a core audio stream includes signaling relating to whether an auxiliary stream is provided and the channel where such a stream is located. Campanella, however, recites a service control header that is inserted in each audio bit stream frame that includes an auxiliary content indicator and data for referencing an auxiliary data channel (*Col. 1, Line 63- Col. 2, Line 4; Col. 2, Lines 46-55; and Col. 23, Line 64- Col. 24, Line 62*).

Mansour, Nahrstedt, and Campanella are analogous art because they are from a similar field of endeavor in coded audio transmission systems utilizing core and enhancement data. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Mansour in view of Nahrstedt with the service control header taught by Campanella in order to implement a means for dynamically controlling the reception of an audio broadcast at a remote receiver (*Campanella, Col. 2, Lines 3-4*).

With respect to **Claim 2**, Mansour discloses the transmission-end preparation method and system, as applied to Claims 1 and 7, and additionally recites:

A receiver with low reproduction quality is used to demodulate and decode only the main data stream (*core audio stream processing at a receiver, Col. 6, Line 46- Col. 7, Line 12*);

A receiver with higher reproduction quality is intentionally used to demodulate and decode only the main data stream or the main data stream and at least one associated auxiliary data stream are demodulated and decoded, where mutually associated demodulated and decoded data streams are linked to one another in such a way that an increase is achieved in the reproduction quality for the at least one useful data source (*demodulating and decoding core and enhancement audio streams and blending the streams together to generate higher quality recovered audio, Col. 6, Line 46- Col. 8, Line 34 and Col. 4, Lines 37-53*).

Although Mansour suggests that his invention can alternatively be carried out with a plurality of communication channels (*"the invention may be utilized with any desired type of communication channel or channels," Col. 3, Line 50- Col. 4, Line 4*), Mansour only suggests such an implementation. Transmitting base and enhancement coded audio streams in different broadcast channels is well known in the art, however, as is evidenced by the teachings of Nahrstedt (*multiple priority transmission channels used to transmit voice data from different streams, Pages 49-50*).

Mansour and Nahrstedt are analogous art because they are from a similar field of endeavor in coded audio transmission systems utilizing core and enhancement data. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to

modify the teachings of Mansour with the priority channels concept taught by Nahrstedt in order to maintain a higher quality of signal over larger data loss ranges (*Nahrstedt, Page 49*).

Although Mansour in view of Nahrstedt discloses transmitting coded audio core and enhancement layers on different transmission channels at a transmitting end, Mansour in view of Nahrstedt does not specifically suggest that a core audio stream includes signaling relating to whether an auxiliary stream is provided and the channel where such a stream is located. Campanella, however, recites a service control header that is inserted in each audio bit stream frame that includes an auxiliary content indicator and data for referencing an auxiliary data channel (*Col. 1, Line 63- Col. 2, Line 4; Col. 2, Lines 46-55; and Col. 23, Line 64- Col. 24, Line 62*).

Mansour, Nahrstedt, and Campanella are analogous art because they are from a similar field of endeavor in coded audio transmission systems utilizing core and enhancement data. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, modify the teachings of Mansour in view of Nahrstedt with the service control header taught by Campanella in order to implement a means for dynamically controlling the reception of an audio broadcast at a remote receiver (*Campanella, Col. 2, Lines 3-4*).

With respect to **Claim 4**, Campanella further discloses an auxiliary data content indicator (*Col. 2, Lines 46-55*) and a service component control field that indicates how main and auxiliary data is decoded (*Col. 3, Lines 25-36*).

With respect to **Claim 5**, Mansour discloses the means for blending core and enhancement audio streams, as applied to claim 2, and further notes the use of enhancement streams for adding stereo components (*Col. 9, Lines 9-11*).

Claim 8 contains subject matter similar to Claims 2 and 4, and thus, is rejected for the same reasons.

8. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Mansour et al in view of Nahrstedt (*"An Architecture for End-to-End Quality of Service Provision and Its Experimental Validation,"* 1995), in view of Campanella et al (*U.S. Patent: 6,201,798*) and further in view of Lou et al (*U.S. Patent: 6,370,666*).

With respect to **Claim 6**, Mansour in view of Nahrstedt, and further in view of Campanella discloses the method and system for dividing coded audio into core and enhancement audio streams for transmission-end processing, as applied to Claim 1. Mansour in view of Nahrstedt, and further in view of Campanella does not specifically suggest that the scalability of MPEG 4 data streams is used to separate the source-coded audio data into main and auxiliary data streams, however Lou discloses the use of MPEG 4 for dividing coded audio into main and auxiliary data (*Col. 6, Lines 17-33*).

Mansour, Nahrstedt, Campanella, and Lou are analogous art because they are from a similar field of endeavor in coded audio transmission systems utilizing core and enhancement data. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, modify the teachings of Mansour with the use of MPEG 4 for dividing coded audio into main and auxiliary data as taught by Lou in order to enable the creation of enhancement layers that provide for higher quality audio reproduction (*Lou, Col 6, Lines 17-33*) using a well-known coding standard that can be implemented using readily available audio coders.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Lee et al (*U.S. Patent: 5,822,360*)- discloses a method for transporting auxiliary data in audio signals.

Lou et al (*U.S. Patent: 6,430,401*)- discloses an IBOC-AM scheme.

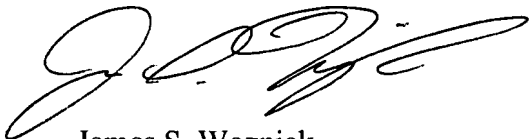
Bosi et al (*"Aspect of Current Standardization Activities for High-Quality, Low-Rate Multi-Channel Audio Coding," 1993*)- discloses an audio coding scheme having a separate low frequency enhancement channel.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'J. Wozniak', with a stylized flourish at the end.

James S. Wozniak
9/27/2007